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CONFIDENTIAL

14 March 1955

MEMORANDUM FOR: The Record

SUBJECT : Package Testing At ERDL

1. On 10 February 1955, the undersigned arranged for the transportation from [redacted] to the ERDL Package Testing Laboratory of eight additional boxes of hot-dipped Japanese rifles for testing. Together with Messrs. [redacted] Storekeeper/Shipping Chief at [redacted]; the undersigned witnessed the testing of these boxes on 16 February 1955. 25X1 25X1 25X1

2. Based on the unsatisfactory results of the previous test, these boxes were redesigned for increased strength and better resistance to damage. The following modifications were incorporated:

a. 1/8" elevation on boxend cleats on all eight boxes

b. Use of three straps rather than two straps on four boxes

c. Use of wooden battens (two per box) on the other four boxes

d. Closer-fitting joints and better construction on all boxes

In addition, the interior packaging was modified on four of the eight boxes. The hot-dipped rifles were supported on felt-lined wooden cradles rather than in the fiberboard cartons used in the other four boxes and in all eight of the first series of boxes.

For each type of interior packaging there were two types of box construction used: steel strapping or wooden battens. This gave a total of four different package types with two boxes of each type.

3. The test agenda was also revised as follows:

a. One box of each of the four different types was subjected to four hours water spray followed by cold storage at 0°F for from twenty to forty hours. This was followed by immediate testing on the Conbur incline inpact tester at eight mph in turn followed by testing in the 14 ft. revolving drum to destruction.

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b. One box of each of the four different types was subjected to the 30-inch drop test, testing until failure. These boxes were not water sprayed nor placed in cold storage prior to testing, but were tested at room temperature.

4. The results of this test clearly demonstrated the importance of careful container construction. Every box of this second test series stood up better under more severe testing than the boxes of the first test series. While this may be attributed in part to the increased strength of wood at low temperatures for the four boxes tested cold, by far and large the major cause for improvement was in the better methods of box construction used.

5. The first test series showed no damage resulting to the hot-dip coating itself. Many of the rifles tested while still cold showed failure of the plastic coating at the muzzle end. In all probability, this was mostly the result of the impact received from the Conbur test. Two important factors contributing to this failure can be sited:

a. Increased brittleness of hot-dip at low temperatures.

b. Small impact area at the muzzle end of the rifle due to an inadequate amount of cushioning material.

All such failures occurred in the original interior pack, i.e., the fiberboard containers. None of the rifles packaged in the wooden felt-lined cradles sustained any damage.

The undersigned witnessed the inspection of only those rifles which were tested cold. There is no reason to indicate that the rifles tested at room temperature should give results any different from the results of the first series of tests.

5. Based on the ERDL package tests, the following conclusions seem in order:

a. The felt-lined wooden cradle type of interior packing should be used, and/or

b. More cushioning material should be used at the muzzle end of the gun to increase the impact area

c. The excess molten hot-dip should be allowed to run off the muzzle end rather than the butt end of the gun to increase the coating thickness at that end

d. The proper amount of importance should be attached to construction quality and structual adequacy of wooden boxes.

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Distribution:
Orig - Burial Pkg. 1955
1 - ED Chrono

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